NEW METHOD OF PREOPERATIVE IMMOBILIZATION FOR THE PROXIMAL FEMORAL FRACTURES

João Ivan Lopes Júnior[1], André Luís Rotoly[1], Carlos Alberto Azevedo dos Santos Filho[1], Francisco José Nunes Cardoso[1]

ABSTRACT

Objective: To evaluate the efficacy of a new method of provisional preoperative immobilization for patients with transtrochanteric femoral fractures. Methods: Over a three-month period, 33 patients were treated at the Orthopaedic Trauma Service for transtrochanteric femoral fracture. We selected 22 patients and they were divided into groups with and without the use of the developed imobilization. The patients were evaluated according to the Visual Analogue Scale for Pain (VAS) during the preoperative and postoperative period in order to verify the analgesic consume and clinical complications. Results: The group that used the immobilization had lower pain, reduced analgesic consume and had less clinical complications. Conclusion: The new immobilization therefore presents good results, however not statistical significant. ***Level of Evidence II, Prospective Comparative Study.***

Keywords: Immobilization. Femoral fractures. Hip fractures.

Citation: Lopes Júnior JI, Rotoly AL, Santos Filho CAA, Cardoso FJN. New method of preoperative immobilization for the proximal femoral fractures. Acta Ortop Bras. [online]. 2013;21(1):40-42. Available from URL: http://www.scielo.br/aob.

INTRODUCTION

Transtrochanteric fractures are extracapsular and occur in an area between the greater and the lesser trochanters.[1,2] The incidence of intertrochanteric fractures is related to sex and to race and varies from one to another.[3] In most cases, intertrochanteric femur fractures occur in patients over 70 years of age.[4]

Hip fractures in older people are generally a result of falls from their own height; however, in young adults they are frequently a consequence of high impact traumatisms, such as those caused by traffic accidents or falls from heights.[3,5]

In the preoperative period, patients will present local pain, shortening and external rotation of the affected limb.[1,3,4]

Resorting to cutaneous or skeletal traction used before the surgical intervention of transtrochanteric fractures is contraindicated, as it does not bring about benefits for the patient and there is the possibility of cutaneous injury due to the mechanical friction or allergic process caused by the material.[3,5-7]

The treatment aims to diagnose and treat comorbidities in the preoperative period and to stabilize the fracture at an early stage, with minimum additional morbidity, to allow the immediate reestablishment of function.[8-11]

The aim of this study is to assess the efficacy of using a new type of provisional immobilization for transtrochanteric fractures, through a prospective randomized trial.

MATERIAL AND METHODS

Thirty-three patients seen over the period of 1/7/2011 to 30/10/2011, with a diagnosis of transtrochanteric fracture performed by anteroposterior and lateral radiographs of the hip were studied prospectively.

Upon admission to hospital, the patients were submitted to complete anamnesis and the Mini Mental State Examination (MMSE) was applied to evaluate cognitive function and to trace dementia and those who did not obtain the minimum score of 23 points were excluded from the survey. All the patients underwent motor and respiratory physiotherapy, received subcutaneous enoxaparin (40mg/day), oral acetominophen (3gr/day) in four doses, and when they complained of pain, were medicated with intravenous tramadol 100mg in a maximum of two daily doses.

The patients were brief on the study through the informed consent form and the recording of results was only begun after this step, following the criteria of ethical principles for medical research involving human beings. Those who agreed to take part in the survey were individualized in terms of age, sex, occupation, trauma etiology, side affected, complications during the preoperative period and the presence or absence of lower limb edema.

The studied patients were separated randomly into two groups,

All the authors declare that there is no potential conflict of interest referring to this article.

Medical Residency Service in Orthopedics and Traumatology of Hospital Beneficência Portuguesa de Ribeirão Preto - Ribeirão Preto, SP, Brazil.

Study conducted in the Medical Residency Service in Orthopedics and Traumatology of Hospital Beneficência Portuguesa de Ribeirão Preto - Ribeirão Preto, SP, Brazil. Mailing address: Rua Emílio Jorge dos Reis, nº 512, Três Vendas, Pelotas - RS, Brazil. CEP 96020-440. Email: joaoivanjunior@yahoo.com.br

Article received on 1/28/2012 and approved on 2/1/2012.

with and without the use of the immobilization, according to the availability of the apparatus developed by the service, and took part in the evaluation with the Visual Analogue Scale for Pain (VAS), at three different times – upon admission to hospital, twenty-four hours after admission, and on the first postoperative day.
The lower limb immobilization was designed to facilitate patient hygiene, enable physiotherapy, accommodate the diverted fragments of the fracture and afford pain relief. The structure of the apparatus provides around 15° of hip flexion, 20° of knee flexion, ankle at 90° and lower limb rotated externally by about 15°. (Figure 1)

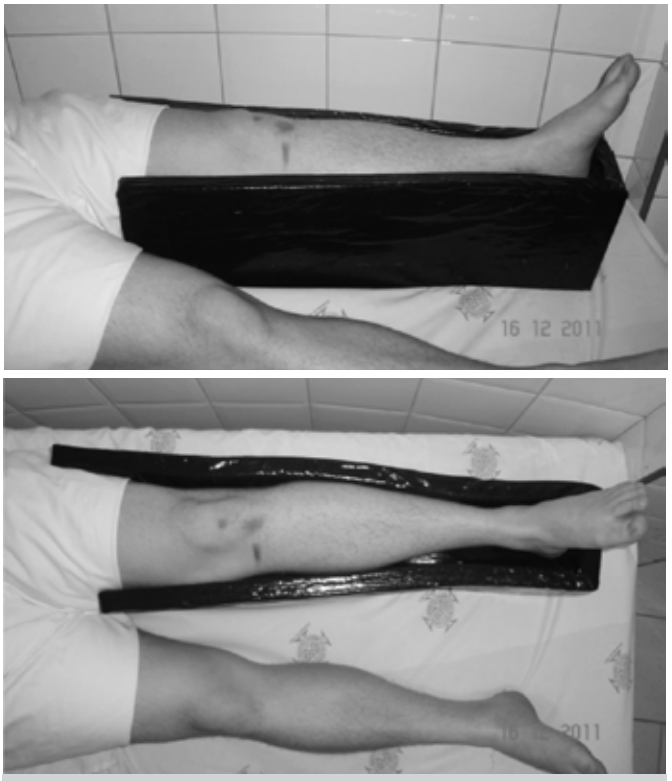

Figure 1. Patient using the developed immobilization in the preoperative period.

RESULTS

In this study, of the 33 patients with transtrochanteric fracture who were evaluated initially, they all agreed to take part in the study through the informed consent form and had the MMSE exam; 11 patients obtained a score below 23 points on the cognitive tracing scale, and were therefore excluded from the survey. Of the 22 patients who continued in the study, 12 used the apparatus developed for the lower limb and the other 10 did not make use of the device.
The group that used the immobilization complained less of pain at the three times when the VAS scale was applied during the perioperative period when compared with those who did not make use of the immobilization method. (Figure 2) In addition, 66.7% of the patients from the group that used the immobilization made use only of acetominophen and did not need to use tramadol. (Figure 3)
Moreover, the incidence of urinary tract infections was similar in the studied groups and it was observed that the patients with

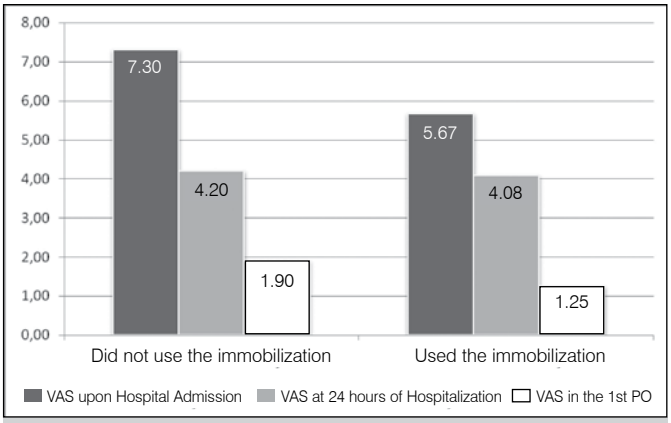

Figure 2. Mean VAS of the patients during the perioperative period.

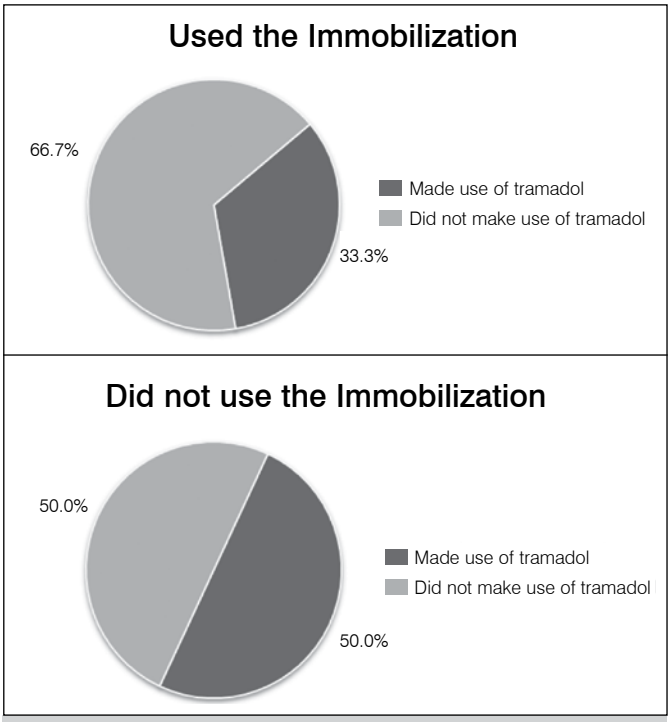

Figure 3. Comparative analysis of the data obtained through the use of the immobilization and the need to use tramadol.

immobilization did not present lower limb edema, yet 8.3% were diagnosed with pneumonia. (Figure 4)

DISCUSSION

In comparison to the studies by Resch *et al.*[11], of 2005, and Saygi *et al.*[5], of 2010, which recommend placing a pillow or other device under the proximal femur fracture in order to provide the patient with comfort and pain relief, in this study, the use of the developed immobilization, although not statistically significant, also evidences therapeutic benefit and its use is therefore recommended in the preoperative period of patients with transtrochanteric fracture.
Findings such as these are important in the planning of future protocols for the preoperative treatment of proximal femur fractures. The initial treatment of transtrochanteric fractures is being

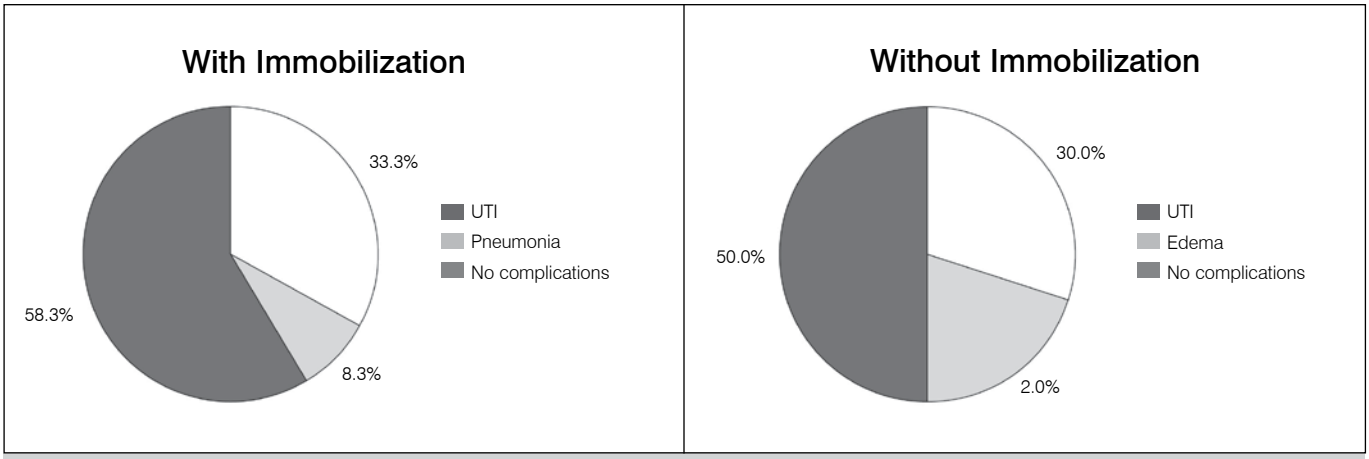

Figure 4. Complications arising during the study.

approached more appropriately with the use of an immobilization device, since it reduces the consumption of analgesics. The use of the developed immobilization in pain control shows itself to be statistically non-significant with p-above 0.05, yet we believe that that is due to the reduced amount of data collected.

CONCLUSION

Accordingly, the use of the new provisional immobilization method for transtrochanteric fractures showed its ability to control the pain of patients in the perioperative period and afforded a reduction in the use of tramadol, yet was statistically non-significant.

REFERENCES

1. Köberle G. Fraturas transtrocanterianas. Rev Bras Ortop. 2001; 36(9): 325-9.
2. Canto RST, Sakaki M, Susuki I, Tucci P, Belangero W, Kfuri Jr M, et al. Fratura transtrocanteriana. Rev Assoc Med Bras. 2009;55(6):631-41.
3. Koval KJ, Zuckerman JD. Fraturas intertrocantéricas. In: Rockwood e Green: Fraturas em adultos. Barueri, SP: Manole; 2006. p.1635-7.
4. La Velle DG. Fraturas do quadril. In: Cirurgia ortopédica de Campbell, 10a. ed. Barueri, SP: Manole; 2007. p.2873-5.
5. Saygi B, Ozkan K, Eceviz E, Tetik C, Sen C. Skin traction and placebo effect in the preoperative pain control of patients with collum and intertrochanteric femur fractures. Bull NYU Hosp Jt Dis. 2010;68(1):15-7.
6. Anderson GH, Harper WM, Connolly CD, Badham J, Goodrich N, Gregg PJ.Preoperative skin traction for fractures of the proximal femur. A randomized prospective trial. J Bone Joint Surg Br. 1993;75(5):794-6.
7. Beaupre LA, Jones CA, Saunders LD, Johnston DW, Buckingham J, Majumdar SR. Best practices for elderly hip fracture patients. A systematic overview of the evidence. J Gen Intern Med. 2005;20(11):1019-25.
8. Vidán M, Serra JA, Moreno C, Riquelme G, Ortiz J. Efficacy of a comprehensive geriatric intervention in older patients hospitalized for hip fracture: a randomized, controlled trial. J Am Geriatr Soc. 2005;53(9):1476-82.
9. Orosz GM, Magaziner J, Hannan EL, Morrison RS, Koval K, Gilbert M, et al. Association of timing of surgery for hip fracture and patient outcomes. JAMA. 2004;291(14):1738-43.
10. Roche JJ, Wenn RT, Sahota O, Moran CG. Effect of comorbidities and postoperative complications on mortality after hip fracture in elderly people: prospective observational cohort study. BMJ. 2005;331(7529):1374.
11. Resch S, Bjärnetoft B, Thorngren KG. Preoperative skin traction or pillow nursing in hip fractures: a prospective, randomized study in 123 patients. Disabil Rehabil. 2005;27(18-19):1191-5